

HEADQUARTERS MARINE CORPS ROUTING SHEET (5211)

NAVMC HQ 335 (REV. 06-03)

						1 DATE: 10 May 2004			
2 OPERATION CODE						3 SUBJECT:			
X - ORIGINATOR OF OFFICE AFFIXING ROUTING SHEET A - APPROPRIATE ACTION B - GUIDANCE C - SIGNATURE D - COMMENT E - RECOMMENDATION F - CONCURRENCE			G - INFORMATION H - RETURN TO: Room I - INITIAL J - DISPOSITION K - DECISION L - RETENTION O - (OTHER)			INSECT REPELLENCY PRODUCT IMPROVEMENT TO THE MARINE CORPS COMBAT UTILITY UNIFORM			
ROUTING - Use numbers to show order of routing						DMCS-MCSC-2004-8-3725			
4	5 OPR	6. ADDRESSEES		7 DATE		8 INITIALS	9 NATURE OF ACTION REQUIRED	ORIGINATOR'S INITIALS	DUE DATE (if any)
RT	CODE			IN	OUT	CONCUR	NONCONCUR		
////	K	COMMANDANT	CMC					ROUTINE	
////		MILITARY SECY	MILSEC		9/11	2		URGENT	GRP
////	EE	ASST COMMANDANT	ACMC		9/10	402			30 May
////		MILITARY ASST	MILASST						
////	A	DIR MARCORSTAFF	DMCS		9/10	10			
9	EI	SGTMAJ MARCOR	SGTMAJ		9/10	10			
8	EI	DC, P&R	R		9/10	10			
7	EI	DC, M&RA	M&RA	9/4	9/10	10			
6	EI	DC, PP&O	P		9/10	10			
		DC, AVN	A		9/10	10			
5	EI	DC, I&L	L		9/10	10			
		DIR, I	I						
		DIR, C4	C4						
		DC, CDC	CDC						
		SJA TO CMC	JA						
		LEGIS ASST	OLA						
		DIR PA	PA						
		DIR AR	AR						
		IGMC	IG						
		COUNSEL FOR CMC	CL						
4	EI	DIR HEALTH SERV	HS		9/10	10			
		CHAPLAIN	REL						
		DIR SPL PROJ	SPD						
		MCRC	MCRC						
		MCLC	LC						
		HQBN	HQBN						
		MARBKS	MARBKS						
3	EI	President, MCUB	MCUB		9/10	10			
2	EI	CG, MCSC	MCSC		9/10	10			
1	EI	PGD, CESS	CESS		9/10	10			
	X	PM, ICE	PM, ICE		9/10	10			
						10 REFERENCES HELD BY (Name, Grade, Office Code, Telephone ext) G. R. Patricio, LtCol USMC; PM, ICE ; (703)432-3334			
						11 REMARKS AND SIGNATURE (If additional space is necessary, attach plain paper)			
						1. Purpose: To obtain CMC decision on the addition of permethrin treatment to all combat utility uniforms in order to provide increased protection to Marines from insect borne disease.			
						2. Discussion:			
						a. Tabs 1 through 3 provide additional information in support of the enclosed decision paper.			
						b. The ongoing threat to our forces deployed in the CENTCOM AOR from insect borne disease and the necessary time required by industry to ramp up to this desired capability requires timely resolution of this issue.			
						3. Recommendation: That CMC approve permethrin treatment of all combat utility uniforms.			
						VR/S <i>[Signature]</i>			

Sgt F

29/14

#04080000

9/14

10 May 04

DECISION PAPER

Subject: INSECT REPELLENCY PRODUCT IMPROVEMENT TO THE MARINE CORPS COMBAT UTILITY UNIFORM

1. Purpose. To provide CMC information and a recommendation on a proposed improvement to the combat utility uniform by addition of an application of permethrin that will provide our Marines protection from insect borne diseases.

2. Background.

a. Insect borne diseases include malaria, West Nile virus, leishmaniasis, Lyme disease and others. Insect bites alone can result in infection and all contribute to degradation of combat effectiveness. While no single prevention method completely eliminates the threat of insect borne diseases, treating 100% of the uniforms will significantly reduce the risk. The recommendation from Cmdr, MARFORLANT on the JAGMAN investigation of the outbreak of malaria in Liberia in 2003 (Tab 1) and the current threat of Leishmaniasis facing our forces in Iraq (Tab 2) supports this recommendation.

b. A controlled level of permethrin is safe for human contact as established by military medical and pest management communities and the Environmental Protection Agency. Commercially, permethrin treated apparel is being marketed and approved for wear by children and pregnant women. Treating uniforms, tents, mosquito netting and other equipment with permethrin is one of the most effective personal and unit protective measures.

c. Currently, the most frequent method of treatment is an IDAA kit or hand spraying that relies upon Marines to treat their uniforms. The effectiveness of these methods is limited and applying these treatments under field conditions is difficult at best.

d. A new commercial application available from "Buzz Off Insect Shield" brings permethrin treatment of clothing and other articles to a superior level of effectiveness far exceeding existing military methods. Our testing has shown it to be 100% effective in quickly knocking down insects after 50 home washings of the uniform. Testing continues to determine failure point compared to the service life of the uniform and verify its effectiveness against other insect threats. Recently II MEF has treated uniforms for deploying MEUs by this company and is currently treating additional uniforms.

3. Discussion.

a. The associated costs of treating insect borne disease in comparison to factory treating uniforms with permethrin makes this

a very cost effective method of protecting Marines. The associated costs of treatment vs. medical care costs can be as high as 64:1. The attached brief at Tab 3 provides additional cost analysis benefit.

b. Permethrin treating the uniform through a factory process would increase the individual cost of the complete uniform by approximately \$8.00 per set; it is likely that this cost would be reduced over time, as additional companies prove their capability with competitive products. The total yearly cost to the Marine Corps for issue and maintenance allowance is approximately \$4M annually. Additionally, an R&D effort may make it possible to add insect repellency during the permanent press phase of production, which would also reduce the overall cost (\$~2.50 per set) of this single process improvement.

4. Recommendation.

That CMC approve this protection enhancement for all uniforms, which would be incorporated in the uniform specifications.

	Approve	Disapprove
<u>Recommendation:</u>		
CG, MCSC	WDC	
President, MCUB		
Medical officer		
D/C I&L		
D/C PP&O		
D/C M&RA		
D/C P&R		
SMMC		
ACMC		
<u>Decision:</u>		
CMC	19/15	

Prepared by: LtCol G.R. Patricio, PM, ICE, 703-432-3334,
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PERMETHRIN INCREASE COST SUMMARY:

	<u>Min</u>	<u>Max</u>
<u>GWOT</u>		
FY04	\$2,422,500	\$2,422,500
FY05	<u>\$7,911,000</u>	<u>\$9,396,400</u>
Total	\$10,333,500	\$11,818,900
<u>CRA</u>		
FY06	\$3,525,000	\$5,162,500

FY 04 - Balance of FY04 Production with the adoption of Permethrin treatment

	<u>Total Qty</u>	<u>Total Cost</u>
Uniforms	249,000	\$1,992,000.00
Garrison Covers	231,800	\$347,700.00
Field Covers	55,200	\$82,800.00
FY04 Cost Increase		\$2,422,500.00

FY 05 - Increased production for OIF & safety level

	<u>Total Qty</u>	<u>Max Total Cost</u>	<u>Min Assumes expanded SOS</u>
Uniforms	968,000	\$7,744,000.00	\$6,534,000.00
Garrison Covers	693,600	\$1,040,400.00	\$867,000.00
Field Covers	408,000	\$612,000.00	\$510,000.00
FY05 Cost Increase		\$9,396,400.00	\$7,911,000.00

FY 06 - Routine production for annual peacetime sustainment

	<u>Total Qty</u>	<u>Max Total Cost</u>	<u>Min expected expanded SOS</u>
Uniforms	500,000	\$4,000,000.00	\$2,750,000.00
Garrison Covers	425,000	\$637,500.00	\$425,000.00
Field Covers	350,000	\$525,000.00	\$350,000.00
FY06 Cost Increase		\$5,162,500.00	\$3,525,000.00



UNITED STATES MARINE CORPS

U.S. Marine Corps Forces, Atlantic
1468 Ingram Street
Norfolk, Virginia 23551-2596

5800
SJA/JSB/N
19 APR 2004

SECRET - Unclassified upon the removal of enclosures (4), (5), (7), (9), (15), (16), (19), (32), (33), (50), (52), and (53)

THIRD ENDORSEMENT on Col Cronin's ltr 5800 of 7 Oct 03

From: Commander, U.S. Marine Corps Forces, Atlantic
To: Commander, II Marine Expeditionary Force

Subj: (U) JAGMAN INVESTIGATION INTO THE FACTS AND CIRCUMSTANCES THAT RESULTED IN THE MEDICAL EVACUATION OF APPROXIMATELY 45 MEMBERS OF THE IWO ARG/MEU ON OR ABOUT 04 SEPTEMBER 2003 AND THE OUTBREAK OF MALARIA AFFECTING IWO ARG/MEU PERSONNEL

1. Forwarded, for action as matters under your cognizance. You are directed to provide a list of corrective actions such as those highlighted in enclosure (85) to improve medical force protection from vector-borne diseases and health threats as part of MEU training by 21 May 2004. Additionally, provide a point of contact and a plan of action and milestones to the U.S. Marine Corps Forces, Atlantic Surgeon by 7 May 2004, on how recommendation 3 of the subject investigation shall be accomplished.

2. I remain concerned that programmatic Operational Risk Management precautions did not safeguard the Marines and Sailors entrusted to our care. Our force will continue to operate in medically challenging and frequently dangerous environments. We must do so wisely utilizing the safeguards necessary to protect our forces.

3. The malaria threat 26 MEU faced in Liberia was known. The direction from higher authorities was consistent and clear. Personal protective measures were the primary protective measure to be supported by chemoprophylaxis. Except for the difficulties experienced in pre-treating uniforms with permethrin, 26 MEU had the resources (DEET, netting, chemoprophylaxis) necessary to combat vector-borne diseases. This investigation shows the leadership of 26 MEU did not effectively utilize these resources to protect its Marines while carrying out its mission.

4. A copy of this investigation is provided to the Commanding General, Marine Corps Systems Command for consideration of evaluation and possible implementation of the recommendation contained in enclosure (85), that the Marine Corps acquire and distribute permanently permethrin-treated utilities for use in these medically dangerous geographical areas.

SECRET - Unclassified upon the removal of enclosures (4), (5), (7), (9), (15), (16), (19), (32), (33), (50), (52), and (53)

Subj: (U) JAGMAN INVESTIGATION INTO THE FACTS AND CIRCUMSTANCES THAT RESULTED IN THE MEDICAL EVACUATION OF APPROXIMATELY 45 MEMBERS OF THE IWO ARG/MEU ON OR ABOUT 04 SEPTEMBER 2003 AND THE OUTBREAK OF MALARIA AFFECTING IWO ARG/MEU PERSONNEL

5. A copy of this investigation is provided to the Commanding General, Marine Corps Combat Development Command for consideration of forwarding the investigation to its Training and Education Command, for implementation of training in this area of threat Marine Corps wide, as we are and will continue to operate in environmentally threatening environments.



M. R. BERNDT

Copy to:
CMC (JA)
COMARFOREUR
COMSIXTHFLT
CG, MCCDC
CG, SYSCOM
Col Cronin
File

Submitted by: I Marine Expeditionary Force
Story Identification Number: 200457112350
Story by Lance Cpl. J.L. Bush

CAMP FALLUJAH, Iraq(May 07, 2004) -- Marines and sailors here are getting ready to combat a little-known and potentially dangerous enemy indigenous to this region.

The bite of an Iraqi sand fly can debilitate a Marine, sailor or a whole unit, but with proper protection the parasitic infection it causes, leishmaniasis, can be prevented, according to Petty Officer 1st Class David A. Carroll, the preventive medicine chief with I Marine Expeditionary Force.

I Marine Expeditionary Force Headquarters Group's preventive medicine department has been spraying uniforms, buildings and certain open areas around the base with pesticides like permethrin, Scurg and Dmand.

Even though they are commonly-used pesticides, certain precautionary measures are taken to limit the exposure to personnel-- such as limiting spraying from 2 a.m. and 4 a.m., according to Carroll.

"There are three types of prevention: DEET for skin, having uniforms sprayed and proper education," said Chief Petty Officer Joseph Campbell, a Denham Springs, La., native, and a corpsman with Naval Mobile Construction Battalion 74, as he was having his uniforms sprayed with permethrin.

The proper prevention of leishmaniasis is vital since there is no cure, and it is common for the disease to take three to six months before symptoms appear.

Leishmaniasis manifests in two ways, the most common being cutaneous, or skin related, and visceral or internal. The latter can be deadly.

"Visceral leishmaniasis is extremely rare, but left untreated it can be potentially fatal," said Lt. Cmdr. John Benjamin, a Baltimore, Md., native, and I MEF Group Aid Station medical officer. "The symptoms are reoccurring fever, unexplained weight loss and general flu-like symptoms that won't go away. The cutaneous form is characterized by a sore or lesion that will not heal and won't respond to antibiotics or normal treatment."

Not every sand fly carries the infection but enough do to make it a common disease in this region.

"Here in Iraq, leishmaniasis is treated as a childhood disease because almost every child gets it," said Carroll.

The sand fly bites are common during the summer months -- making April through November the prime time for cases, said Carroll.

Most uniforms were sprayed before leaving Camp Pendleton to aid in the prevention of sand fly bites and more have been treated in Iraq.

"We have sprayed close to 2,000 uniforms for the Marines, Army and Seabees since we have been in theater," said Benjamin.

Additional treatment is required for areas not covered by the uniform.

"The hands and face are the only areas susceptible to infection when treated uniforms are properly worn," said Carroll. "To protect uncovered areas DEET (lotion) should be used, but only if the product has a 30 percent concentration, which most store-bought products do not."

If properly treated, some sores may go away, but if left unattended the sore will remain for a long time and it will cause permanent scarring.

"Nothing will protect 100 percent but if you spray,

"Use DEET and wear your uniform properly, then the likelihood of being infected is almost zero," said Chief Petty Officer Chris W. Thorne, the I MEF medical plans chief and a Phoenix native.



Protecting the Force Adding Insect Protection;

A Proposed Product Improvement for the Combat Utility Uniform

*"This will be a very long war, if for every division I have fighting
the enemy, I must count on a second division in the hospital with malaria
and a third division convalescing from this debilitating disease."*

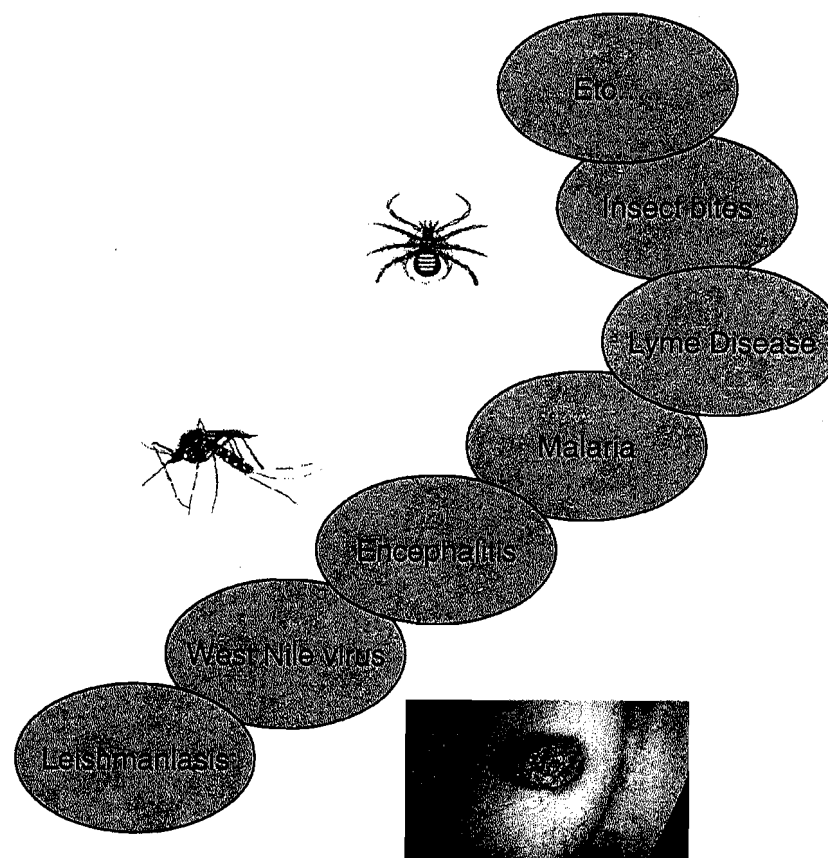
General Douglas MacArthur 1943

**LtCol G.R. Patricio, USMC
PM, Infantry Combat and Equipment
Marine Corps Systems Command**

May 10, 2004

Protecting the Force from Insect Borne Diseases

- New diseases in the Middle East such as Leishmaniasis, for which there are no preventative vaccines or drugs available.
- Existing threats both CONUS and OCONUS threaten the readiness of our force.



Leishmaniasis: Skin lesion from sand fly

What are our Choices?

- Under Protection: Current field application methods result in high risk of untreated or incorrectly treated uniforms and rely on the individual Marine or the Commander to affect the protection.
- Reliable Protection: 100% of all combat utility uniforms treated with permethrin at the factory. A new commercial standard increases protection with 100% knock down rate (kill the insect).

Cost Analysis: The Liberian Example

- Cost of Medical Treatment
 - 80 Malaria Cases @ \$2,800 ea ⁽¹⁾ \$224K
 - Loss in Readiness ⁽²⁾ ~ 1 mo average each
\$15,739 X 80 = \$1.2M
 - TOTAL: \$1.4M
- Cost of commercial uniform treatment:
 - 290 Joint Task Force Members @ 5 uniforms
@ \$8.00 ⁽³⁾ per set \$ 11.6K
- If ones takes 50% of the above medical cost estimates we could realize a net payback of :

64 to 1

(1) Armed Forces Pest Management Board, Major Dwight L. Rickard

(2) Congressional Budget Office Testimony of Director Douglas 5 November 2003

(3) Estimated cost of Buzz Off treatment for blouse and trousers

The Liberian Example

- **Deployed troops can be relied upon to:**
 - **Take preventative medicine- 5%**
 - **Use permethrin field treatments –12%**
 - **Use insect repellent- 27%**
 - **Use insecticide treated mosquito nets- 0%**

- **The Result?...~44 % of the JTF succumbs to malaria**

The infection rate in the recent experience in Liberia shows the dramatic impact of insect borne diseases on readiness

Source: *Washington Post*, Oct 18, 2003, JTF Liberia Consensus Report of 9 Oct 2003

Leishmaniasis: Treatment costs

- Currently 500 cases have been diagnosed in theater in Iraq. ⁽¹⁾
- All cases must be returned to CONUS for treatment ⁽²⁾
- Estimated Leishmaniasis-related costs approximately \$20,000 per patient ⁽¹⁾⁽²⁾ and 92 lost duty days per patient. ⁽³⁾
- Range of costs for Operation Iraqi Freedom:
 - 500 soldiers X \$20,000 = \$10M
 - 500 soldiers X \$517.45/day X 92 days = \$24M
 - Total Leishmaniasis cost 500 soldiers: \$34M
 - 50% conservative estimate of cost: \$17M

(1) Col. Alan Magill, Walter Reed Army Institute of Research, The Wheel Online

(2) Major Dwight I. Rickard, Armed Forces Pest Management Board

(3) Major Jeffrey M. Gambel, "Debugging the Battlefield". Military Review, Nov-Dec 1996

Conclusions and Recommendations

- Superior effectiveness and durability of commercial garment insect repellent treatment strongly indicates factory application to benefit all uniforms.
- Uniforms would be label marked to clearly reflect permethrin treated.
- Introduce permethrin treatment as standard specification to the uniform utilizing the commercial performance level as a new minimum standard.
- Initiate 6 month production phase-in at earliest opportunity.
- Treat uniforms for all deploying forces as done by II MEF until phase in complete.
- Continue testing to identify when failure of protection effectiveness occurs and verify repellency against other insects.
- Initial cost increase of combat utility uniform anticipated to be \$8.00 per set, but expect this cost to decrease (~\$5.00) as acceptable competitive products emerge. R&D may further reduce cost (~\$2.50) by incorporating permethrin with permanent press in a single treatment process.

7 June 2004

INFORMATION PAPER

Subject: Factory Treatment of USMC Uniforms

1. Purpose. To provide medical rationale and comments on proposed permethrin treatment of USMC Combat Utility Uniforms (CUU).

2. Key Points

- . Permethrin-treated uniforms are required for operations where diseases transmitted by biting insects are present.

- . Treating uniforms with permethrin at the unit level is logistically very difficult. The difficulties are compounded by short-notice deployments.

- . Permethrin treated uniforms are safe to wear by the majority of personnel.

- Some Marines may have skin sensitivity to permethrin-treated uniforms.

- Permethrin is not a known carcinogen.

- The U.S. Environmental Protection Agency (EPA), the U.S. Food and Drug Administration (FDA) and the International Agency for Research on Cancer classify agents as known, probable, possible and not known to cause cancer in humans. Permethrin is classified as a possible carcinogen due only to studies in animals.

- Permethrin is not a known cause of human birth defects. EPA and FDA confirm this classification.

- However, FDA recommends that pregnant women avoid permethrin use unless clearly needed.

- FDA has approved permethrin for use on children as young as 2 months of age.

. The Armed Forces Pest Management Board has approved permethrin treated uniforms for long-term wear.

- Long-term defined as 18 hours per day, 7 days per week for 10 years with no adverse health affects.
- Observed adverse affects in animal studies occurred only at doses 74,000 times greater than calculated human dose.
- Risk Management perspective reveals in-theater combat-effective loss due to permethrin-related impairment near zero but same losses due to insect-transmitted diseases in unprotected forces can exceed 50%.

3. HQMC Health Services Recommendations:

- Factory permethrin treatment of USMC Combat Utility Uniform for field and garrison use.
- Do NOT treat maternity uniform with permethrin.
- Pregnant Marines should not be required to wear permethrin-treated uniforms.
- Provide provisions for permethrin removal from uniforms, via dry cleaning, for pregnant Marines who are required to continue wearing the USMC CUU.
- Provide provisions for permethrin removal from uniforms, via dry cleaning, for those Marines who have had verified skin sensitivity to permethrin.

Prepared by: D. L. MCMILLAN, CDR, MC, USN
HS, HQMC, 704 614 4477